



The birds of Yapo Forest, Ivory Coast

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Summary

The avifauna of the previously ornithologically ignored Yapo Forest is described in an annotated checklist of 225 species. Yapo Forest consists of some 24,000 ha of secondary lowland rainforest and constitutes the largest remaining tract of mature forest within easy reach from Abidjan, Ivory Coast's main city. Three species listed as threatened or near-threatened by Collar & Stuart (1985) occur in Yapo. It holds the most important known population in the country of one of these, the Yellow-throated Olive Bulbul *Criniger olivaceus*. The checklist, based upon observations made during 167 visits over the period 1985-1990, includes notes on breeding, seasonal occurrence and general ecology of species, and on field identification of some difficult species.

Résumé

L'avifaune de la Forêt de Yapo, jusqu'ici méconnue des ornithologues, est décrite dans une liste annotée de 225 espèces. La Forêt de Yapo comprend quelques 24.000 ha de forêt secondaire ombrophile de plaine, et constitue la plus vaste formation forestière survivante à proximité d'Abidjan, ville principale de Côte d'Ivoire. Trois espèces classées comme menacées, ou près de l'être, par Collar & Stuart (1985) ont été observées à Yapo. D'une de celles-ci, le Bulbul à barbe jaune *Criniger olivaceus*, Yapo possède la population la plus importante connue du pays. La liste, basée sur des observations faites au cours de 167 visites pour la période de 1985-1990, comprend des notes sur la reproduction, la présence saisonnière et l'écologie générale des espèces, ainsi que sur l'identification sur le terrain de quelques espèces difficiles.

Introduction

The *Forêt de Yapo* – Yapo Forest – is by far the largest extant tract of mature forest within easy reach from Ivory Coast's economic capital, Abidjan. As such, it holds a wide variety of Upper Guinea forest birds, some of which, such as the Yellow-throated Olive Bulbul *Criniger olivaceus*, are easier to see here than anywhere else known to us in the country. It seems, therefore, surprising that it has hitherto largely been ignored by ornithologists – it is, for example, not mentioned by Thiollay (1985).

The observations presented in this paper were gathered over the period 1985–1990 when, in all, we made 167 visits to Yapo, spread over all months of the year and totalling some 1400 hours in the field. A few complementary data from other observers have also been included. While we make no claims that the avifaunal inventory detailed below is exhaustive – only a few overnight visits were made, mistnets were used on a few occasions only and parts of the forest are inaccessible on short visits – we think that the asymptote has almost been reached. At least some of the obvious absences from the list are real rather than apparent: if Yapo has been little visited by ornithologists, it is well known to poachers, with the result that the large hornbills, raptors and guineafowl are scarce or absent, as are large mammals. The lack of any large rivers or lakes in Yapo explains the lack of birds of riparian habitat.

Description of Yapo Forest

Located some 55 km north of Abidjan, the forest (5°42'N, 4°6'W) is composed of three sections (Yapo, Mambo and l'Abbé; see Fig. 1), collectively known locally as Yapo, which at present cover some 24,000 ha. The forest is cut by two main roads (Abidjan-Agboville and Abidjan-Abengourou), by the country's only main railway line (which forms the boundary between the Yapo and Mambo sections) and by an overhead power line. The area is low-lying (altitude 75 m), more or less flat, with a few swampy places and a number of small streams, most of which dry to disconnected pools during the main dry season (December to March). The area receives an annual average of some 1750 mm of rain, with a peak in June–July and a smaller one in October. The mean annual temperature is 26.5°C, with a minimum of 21°C and a maximum of 33°C. The forest is of the evergreen type, described as *Diospyros* spp. and *Mapania* spp. forest (Mangenot *et al.* 1948), and is characterised by an abundance of species such as *Dacryodes klaineana*, *Piptadeniastrum africanum*, *Heritiera utilis*, *Anopyxis klaineana* and *Scottellia chevalieri*.

Mammal species were rarely encountered in Yapo except for squirrels, which are common and of which two species were identified (Red-footed Squirrel *Funisciurus pyrropus* and Giant Forest Squirrel *Protoxerus stangeri*). A few small groups of Campbell's and Lesser White-nosed Monkeys *Cercopithecus campbelli* and *C. petaurista* survive, but these are extremely wary. All the more remarkable, therefore,

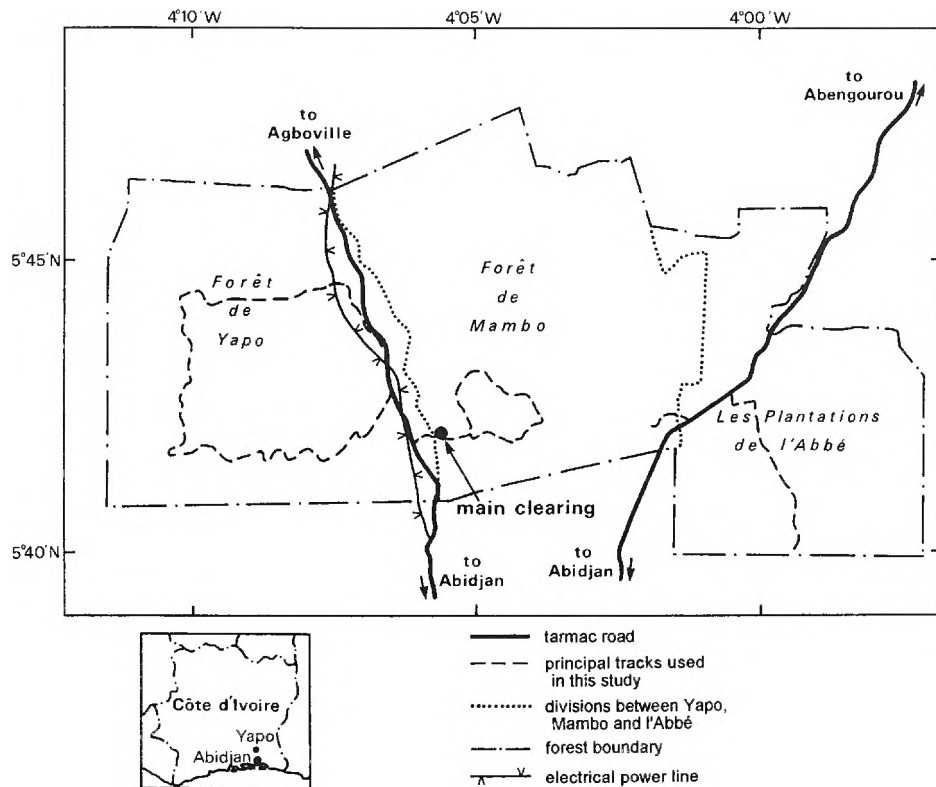


Figure 1. Map of Yapo Forest showing the location of main tracks from which observations described in this study were made. Grid system of footpaths in Yapo forest proper not shown.

is the occurrence of Chimpanzees *Pan troglodytes*, which were heard on a few occasions. The only antelopes seen were Red-flanked Duiker *Cephalophus rufilatus* and Bushbuck *Tragelaphus scriptus*. Tree Hyrax *Dendrohyrax arboreus* are common and may be heard calling from the early evening till just after dawn. Bosman's Potto *Perodicticus potto* was once spotted at night. Giant Rat *Cricetomys emini* and Brush-tailed Porcupine *Atherurus* sp. are trapped for food by local people.

Yapo was established as a forest reserve of some 30,000 ha in 1930 and has been selectively managed since that time. Apart from a small area of trials with exotic tree species (400 ha), the forest has been used as an experimental site for promoting the sustainable extraction of indigenous forest timber. Initially, mature specimens of non-commercial tree species were selectively poisoned over large areas which were subsequently replanted with commercially valuable native trees (e.g. *Terminalia ivorensis*, *Khaya ivorensis*, *Heritiera utilis* and *Aucoumea klaineana*). More recently, the selective poisoning (somewhat euphemistically called "essais de dévitalisation") has not been followed by the replanting of trees, but the forest left to regenerate in the hope that marketable species, released from competition, would put on extra growth. In 1989 the selective logging of some of these trees began. Thus, Yapo has been much modified by man; there is nothing remotely approaching primary forest. What remains, however, is good secondary and in eastern Ivory Coast even this is hard to find.

In 1986 a wide circular track was built in the forest west of the road to Agboville. This, combined with the grid system of trails, greatly enhanced accessibility.

In an old and relatively extensive clearing (called the "main clearing" hereafter) the local headquarters of the state company managing the forest was situated. The company's employees and their families were also housed here, forming a small village with a few cultivated plots and some farmbrush. This site was particularly productive for birds in the early morning, with many forest species coming to feed in the trees in and around the clearing. Many of the non-forest species appearing on the Yapo list were also seen here.

We were unable to satisfy ourselves as to what, if any, have been the implications for the forest avifauna of the tree poisoning, in effect the removal of a number of tree species. It is possible that the relative paucity of large frugivores (hornbills, Great Blue Turaco *Corythaeola cristata* etc.) was caused by the loss of possible food sources as well as by hunting. On the other hand the increased number of dead standing trees could be argued to favour woodpeckers, barbets and other hole nesting species. This is a subject worthy of further study.

Presentation of the data

The data are presented in the form of an annotated checklist including an indication of abundance, and observations on behaviour, habitat preferences, breeding, and

seasonal occurrence. Some notes on calls and field identification of some of the more difficult species are included, where these appear to be missing from the literature.

Abundance is indicated as follows (cf. Gore 1990 and Grimes 1987):

Common	invariably encountered, singly (e.g. raptors) or in quite good numbers
Not Uncommon	usually, but not invariably, encountered
Uncommon	fairly frequently, but not regularly, encountered
Scarce	only irregularly and infrequently encountered
Rare	rarely encountered (less than five records).

The indication of abundance is based upon both sighting and call, and is, therefore, inevitably inexact and relative; it is intended as a guide only. It should also be understood that assessing specific habitat preferences in a forest like Yapo is sometimes problematic; it seems much more clear-cut in less disturbed forests, e.g. in Gabon (cf. Brosset & Erard 1986).

In total, 225 species were identified within the limits of Yapo Forest. These include three species listed as threatened or near-threatened by the ICBP/IUCN Red Data Book (Collar & Stuart 1985), while 24 species that occur are listed as candidates for treatment as threatened (see Appendix).

Many species were found to be much commoner than hitherto supposed, certainly in Ivory Coast (cf. Thiollay 1985). We have indicated where our findings on the status of these birds, and of others, differ from those of Thiollay (1985).

Scientific names and sequence of families and species follow Brown *et al.* (1982), Urban *et al.* (1986) and Fry *et al.* (1988) for the non-passerines and Thiollay (1985) for the passerines. A change, resulting from the revision of the genus *Batis* (Lawson 1984, 1986) is incorporated, and Kemp's Longbill *Macrosphenus kempii* is treated as a full species, following Hall & Moreau (1970).

Systematic list

Dwarf Bittern *Ixobrychus sturmii*. One sighting, Apr.

White-crested Tiger Heron *Tigriornis leucolophus*. Rare. Very secretive. A few records of single birds on branches overhanging forest streams.

Cattle Egret *Bubulcus ibis*. Rare dry season visitor. Seen flying over the main clearing, Nov-Dec.

Green-backed Heron *Butorides striatus*. Rare. A few sightings of single birds (once two together) flying over the main clearing or along streams near a main track, Dec-Apr.

Grey Heron *Ardea cinerea*. Two sightings of single birds: one near a small stream along a main track (Nov) and one flying over (Mar).

Olive Ibis *Bostrychia olivacea*. One sighting of a single bird flying silently at 9.20 h along the tarmac road through the Plantation de l'Abbé, 1 Nov 1988.

Hartlaub's Duck *Pteronetta hartlaubii*. A single bird near a stream along a main track, 28 May 1987. The rarity of this species is attributable to a lack of suitable habitat.

Honey Buzzard *Pernis apivorus*. Scarce. Sightings of one to two birds circling above the forest in Nov, Dec, Feb, Apr and Jul.

Black Kite *Milvus migrans*. Common above the main roads through the forest, Nov-Apr.

Palmnut Vulture *Gypohierax angolensis*. Common. Adults and immatures seen in all months, flying above the forest or perched on big boughs of high trees along wide tracks and edges.

Congo Serpent Eagle *Dryotriorchis spectabilis*. Two sightings of adults at two localities, perched at mid-level along tracks. One seen hunting low along a track before disappearing into the forest. According to Brown *et al.* (1982) this species is quite vocal; in Yapo, however, we heard it only once.

Harrier Hawk *Polyboroides typus*. Not uncommon. Adult on nest (near power line clearing) mid-Nov to early Feb. A pair with a juvenile in Apr. Other juveniles seen Jun-Aug. Display flight seen Feb, Jul, Oct.

African Goshawk *Accipiter tachiro*. Not uncommon. Regularly seen at dawn circling high over the forest, calling. Juveniles seen in Oct, Dec and Jan. One juvenile seen with a 1 m snake in its talons.

Red-thighed Sparrowhawk *A. erythropus*. Scarce. A pair seen, silently nest-building, on 1 Nov at 9.30 h. Nest (undescribed in the literature; cf. Brown *et al.* 1982, Brosset & Erard 1986) was situated in the fork of a tree next to a track, at a height of some 15 m: a loose structure consisting of relatively long (≥ 40 cm), finger-thick sticks. Although the site was regularly watched thereafter (especially the next day), the pair was not seen again.

Black Sparrowhawk *A. melanoleucus*. Scarce. A few records of singles; once a pair. Seen flying just above and below the canopy and perching inconspicuously below the canopy next to a track.

Long-tailed Hawk *Urotriorchis macrourus*. Not uncommon. The distinctive call was regularly heard, but the bird seen much less often; mainly middle strata inside the forest, but also lower down (to just above the forest floor); occasionally near tracks and clearings. An adult with a juvenile seen in Oct; a single juvenile in Jul. A wholly grey individual (morph described in Mackworth-Praed & Grant 1970, but not in Brown *et al.* 1982) was seen once. Vocalizations include a soft klee-klee-klee-klee-klee (heard from a pair).

Red-necked Buzzard *Buteo auguralis*. Rare. Sightings: 8 Nov 1987 (one high above the forest); 27 Nov 1988 (one); 18 Nov 1989 (two).

Ayres's Hawk Eagle *Hieraetus dubius*. Scarce. Seen flying above and perched inside the forest, Feb, Apr (a pair), Aug-Oct, Nov (an immature).

Long-crested Eagle *Lophaetus occipitalis*. One sighting of a bird on the forest edge, 2 Nov 1987.

Cassin's Hawk Eagle *Spizaetus africanus*. Rare. A few sightings of singles or pairs.
Crowned Eagle *Stephanoaetus coronatus*. A resident pair seen and heard regularly. Display flight of the pair seen in Jun. Once seen with a Piping Hornbill *Ceratogymna fistulator* and once with a squirrel in its talons.

Latham's Forest Francolin *Francolinus lathamii*. Probably common, but very seldom seen. Many heard calling at night (never by day).

Ahanta Francolin *F. ahantensis*. Uncommon. Along forest edges, wide tracks and clearings; mostly recorded at dawn, when calling.

Nkulengu Rail *Himantornis haematopus*. Not uncommon. This species was never encountered during the day, but duetting pairs were heard just after sunset at a number of different localities. Does not approach playback of its call.

Grey-throated Rail *Canirallus oculus*. Apparently rare. Three sightings at the same, half-dry bed of a small forest stream of one (twice) and two birds, searching for food by removing dead leaves with jerking movements of the bill. Due to the extreme secretiveness of this species and the fact that the call was unknown to us, its abundance is difficult to assess.

White-spotted Flufftail *Sarothrura pulchra*. Common. Mostly along the main tracks in rank herbaceous tangles; never deep inside the forest. Calls throughout the year.

African Crake *Crex egregia*. One sighting, of four birds in the main clearing on 8 May; may indicate local movement.

Green Sandpiper *Tringa ochropus*. Scarce. A few sightings of singles at puddles or small pools along the main tracks, Dec-Mar.

Green Pigeon *Treron calva*. Common. In groups in the canopy or flying fast over the forest. Sings whole year round. A pair seen mating in Oct; one on nest in Jan; nest-building observed in Jun.

Blue-headed Wood Dove *Turtur brehmeri*. Common, but shy and not often seen. Lower strata of the forest (usually flushed from ground), singly or in pairs. Sometimes on tracks. Sings whole year round.

Tambourine Dove *T. tympanistria*. Common in the forest and along tracks and edges. Usually in the lower and middle strata. Solitary or in pairs. Juveniles seen in Apr.

Red-billed Wood Dove *T. afer*. Common in the main clearing and along edges with old or new plantations. Absent from the forest proper, even along the main tracks.

Western Bronze-naped Pigeon *Columba iriditorques*. Common in the forest proper and along tracks; solitary or in pairs. Sings whole year round.

Red-eyed Dove *Streptopelia semitorquata*. Once seen flying over the main clearing.

Grey Parrot *Psittacus erithacus*. Scarce. Mostly singles or pairs; a few flocks of up to 11-13. Most sightings Nov-Feb, but singles also in May and Jul. All were of ssp. *timneh*.

[**Red-fronted Parrot *Poicephalus gularis*.** Three green parrots flying over the main clearing on 6 Jul 1987 were almost certainly this species, since the only other

green parrot occurring in Ivory Coast is the savanna-dwelling Brown-necked Parrot *P. robustus*.]

Black-collared Lovebird *Agapornis swinderniana*. Not uncommon. Mostly seen in flocks of 5-10 birds coming to feed at dawn on the fruit of an oil palm in the main clearing. Bigger flocks, of up to 20, seen Jan-Jun. Juveniles seen Feb-Jul.

Great Blue Turaco *Corythaeola cristata*. Not uncommon. Groups of 3-10 birds. Like all large species, suffers from hunting.

Yellow-billed Turaco *Tauraco macrorhynchus*. Common throughout, in pairs or small groups. Immatures seen in Oct and Jan. Green Turaco *T. persa* does not occur in Yapo. In our experience, the two species can fairly easily be separated by their call. *T. macrorhynchus* starts abruptly with a single, loud, harsh note followed by a series of *khaw* notes. *T. persa* takes a "run-up" (*woop-woop*) before starting the series of *khaw* notes.

Levaillant's Cuckoo *Oxylophus levaillantii*. Rare. A few sightings of silent singles, Dec-Mar.

Red-chested Cuckoo *Cuculus solitarius*. Scarce. Heard irregularly the whole year round (never more than one bird per visit).

Black Cuckoo *C. clamosus*. Not uncommon. Mostly heard singing from Oct to Jan. Never heard in Apr-May and rarely in Jun. Maximum six heard in one day.

Dusky Long-tailed Cuckoo *Cercococcyx mechowi*. Uncommon. Sings whole year round. Individuals regularly heard calling from the same territory. Recorded calling at night in places where it was never heard by day.

Olive Long-tailed Cuckoo *C. olivinus*. Common. This species, which is generally considered rare (Fry et al. 1988, Thiollay 1985), is the most frequently heard cuckoo in Yapo and the one that seems to occur at the highest density. Also calls at night (seems to prefer dark, moonless nights). Mostly heard Aug-Mar, rarely in Apr-May, never in Jun.

Cuckoo responses to playback. The *Cercococcyx* cuckoos and *Cuculus clamosus* respond differently to playback of their respective calls. *C. clamosus* approaches and resumes calling from a prominent position nearby, while *Cercococcyx* react by flying silently at the source of the sound, often passing very close to it. They usually fly on to a perch in thick cover from where they may or may not call in response. *Chrysococcyx* cuckoos, on the other hand, seem unmoved by playback of their calls.

Emerald Cuckoo *Chrysococcyx cupreus*. Common in forest interior. Sings whole year round, but mostly heard Oct-Mar. Juveniles seen in Dec and Jan. Once a pair was seen in a mixed-species flock (Dec).

Klaas's Cuckoo *C. klaas*. Common. Mostly clearings and edges. Sings whole year round. A juvenile seen 28 Feb.

Didric Cuckoo *C. caprius*. One sighting of a juvenile in the main clearing, 7 Feb.

Yellowbill *Ceuthmochares aereus*. Common. Forest interior or along edges, from lower strata to just under the canopy; solitary or in pairs. A frequent member of mixed-species flocks.

Black-throated Coucal *Centropus leucogaster*. Uncommon. Along wide tracks and forest edges, in rank vegetation; not in high forest. Singly or in pairs. Sings whole year round.

Senegal Coucal *C. senegalensis*. Rare. Only along the outer edges of the forest.

Sandy Scops Owl *Otus icterorhynchus*. A feather picked up from a path proved, on comparison with museum material, to be of this species.

Fraser's Eagle Owl *Bubo poensis*. Common. Heard and seen on all nights spent in the forest.

Akun Eagle Owl *B. leucostictus*. One sighting: a singing pair on a main track, at night (Aug). The song was reminiscent of *B. poensis*: the "grunting" part was similar, but the "hooting" consisted of a more plaintive wail, and there was also a sort of barking (not present on Chappuis's 1978 recording).

Red-chested Owlet *Glaucidium tephronotum*. Song heard and recorded on two nights (Aug). This species responds well to playback, but, since it is crepuscular as well as nocturnal, if the bird is to be seen well, playback should be attempted at dusk.

Wood Owl *Strix woodfordii*. Probably the commonest owl in Yapo. Heard and seen on all nights in several places.

Sabine's Spinetail *Raphidura sabini*. Common in all months. Maximum ten together (Aug).

Black Spinetail *Telacanthura melanopygia*. Scarce. Sightings of 1-3 birds.

Mottled Spinetail *Telacanthura ussheri*. Scarce. Singles or pairs over the main clearing.

Cassin's Spinetail *Neafrapus cassini*. Not uncommon over the main clearing; also seen elsewhere. Mostly 1-2 birds, sometimes 3-4, max. eight (May).

Palm Swift *Cypsiurus parvus*. Scarce. Singles or pairs, mostly over the main clearing.

European Swift *Apus apus*. Not uncommon from Mar to beginning of Jun and again from Oct to Jan. Once recorded in Aug. Highest numbers in Apr-May and Oct-Nov (up to 50 in a day).

White-rumped Swift *A. caffer*. Two certain sightings, Nov and Apr.

Little Swift *A. affinis*. Scarce. Mainly above the main clearing. Mostly 1-3 birds, max. six (May).

Mottled Swift *Tachymarpis aequatorialis*. One sighting of two calling birds, 2 Feb 1986.

Narina's Trogon *Apaloderma narina*. Only one record of a singing bird, well inside the forest, 1 Feb. The rarity of this species, which is considered frequent in rainforest (Fry *et al.* 1988) and described as widely distributed all over the forest zone in Ivory Coast (Thiollay 1985), seems remarkable.

Chocolate-backed Kingfisher *Halcyon badia*. Uncommon. Sings whole year round. Heard frequently but very seldom seen.

Blue-breasted Kingfisher *H. malimbica*. Scarce. Song heard irregularly the whole year round.

Woodland Kingfisher *H. senegalensis*. Rare. Three sightings in the main clearing, Feb, Apr and Aug.

Dwarf Kingfisher *Ceyx lecontei*. Rare. Seen both in the forest interior and at the edges, at all levels, not necessarily near water. Once seen in a mixed-species flock.

Pygmy Kingfisher *C. picta*. Not uncommon in fairly large clearings, never seen in the forest itself. A juvenile in Oct.

White-bellied Kingfisher *Corythornis leucogaster*. Scarce. Only recorded near streams inside the forest. An adult with a juvenile seen 12 Apr. Voice (not described in the literature): in flight, a high-pitched, vigorous (*t*)*see*, reminiscent of *Ceyx picta* but somewhat louder, more piercing. Very useful in announcing the imminent arrival of the bird, which flies so fast and direct as to be otherwise hard to see at all. The juvenile was heard to utter *tsk, tsk* calls.

Blue-headed Bee-eater *Merops muelleri*. Uncommon along forest paths and narrow, shady tracks. Never in open areas. Seen all year round, mostly in pairs; one sighting of a trio. In view of the relative paucity of information about this species (Fry 1984, Fry *et al.* 1988, Fry & Fry 1992) some details are given.

Food and foraging. Forages by sallying from a perch (mainly lianas, also thin bare branches; height: 1-15 m) in short, sweeping flights. Bill snapping sometimes heard. Food items noted during five observation periods, totalling 90 min., included: 3 very small insects (swallowed without rubbing or beating), 2 Odonata adults, 2 small and 4 medium-sized butterflies (all these insects were rubbed and beaten, but effortlessly swallowed whole, with wings and legs still attached).

Breeding. The trio was watched on 1 Dec for 50 min. between 13.00 and 14.00 h. After some foraging activity (height 1-6 m), two birds alighted on a perch less than 1 m above the ground and each started making alternating fluttering flights above a 30 cm high bank at the edge of the track. They flew a little lower at each flight, until finally one bird landed briefly. Thereupon a second bird also landed briefly at the same spot. Both birds repeated this action a few times, each time staying a little longer, until one bird pecked a few times at the earth before flying off. The same bird repeated this action two more times without being imitated by its companion. The trio then assembled again on a branch 3 m away from the spot and resumed foraging. The whole incident took about 10 min.. Subsequent visits revealed that no burrow was dug. A pair feeding a juvenile in the canopy (height 20 m) was seen on 1 Mar.

Voice. The *s(l)ip* contact call is heard frequently and, although not loud, is quite characteristic and, once learned, greatly assists in locating this unobtrusive species. Other calls noted: soft, muffled, hoarse little noises (frequently uttered); a soft, suppressed *weeh weeh*, followed by a few billsnaps.

Black Bee-eater *M. gularis*. Uncommon. Due to its preference for more open habitat, more often seen than *M. muelleri*, although less common in Yapo. Mostly seen perching conspicuously on dead branches in clearings and along wide, open tracks. Also a few sightings within the forest proper, then always very high up, in an emergent tree or in some open space. Encountered all year round, mostly in pairs.

Two sightings of three birds together (Jan, Oct). Four birds flying purposefully over the forest together, first seen crossing one track, then seen again crossing another, having apparently flown in a straight line over 5 km of forest (the observer in the meantime having driven that distance), were perhaps an indication of some local movement (28 Aug).

Voice. Although the literature states that the species rarely calls (Fry 1984, Brosset & Erard 1986, Fry *et al.* 1988, Fry & Fry 1992), the rather loud and distinctive contact call – *clip* or *wic* – was heard at every encounter (also at other places in Ivory Coast, and in Zaire) and often betrayed the presence of birds perched unobtrusively. No other calls were heard.

White-throated Bee-eater *M. albicollis*. Common non-breeding visitor from end of Oct to May (last sighting: 25 May). In small groups in clearings and near forest edges and tracks.

Blue-throated Roller *Eurystomus gularis*. Uncommon the whole year round. Singly or in pairs, along tracks or in emergent trees in the forest.

Broad-billed Roller *E. glaucurus*. Although this Afrotropical migrant is common in the area, it is rare within Yapo and was only seen in large clearings.

Forest Wood-Hoopoe *Phoeniculus castaneiceps*. Rare. A few records of one or two birds well inside the forest. Once seen in the main clearing. Remarkably, we have no records of White-headed Wood-Hoopoe *P. bollei*, given that this species occurs in even heavily degraded forest and occurs in small forest remnants less than 50 km distant.

White-crested Hornbill *Tockus albocristatus*. Not uncommon. The well documented habit of following monkey troops was observed a few times. A juvenile seen on 10 Jan.

Black Dwarf Hornbill *T. hartlaubi*. Very secretive. One male in l'Abbé, 5 Feb.

Red-billed Dwarf Hornbill *T. camurus*. Scarce. More often heard than seen. Song mostly heard in Nov-Dec; also recorded in Mar, Jul and Sep. A few records of 2-3 birds in mixed-species flocks.

Pied Hornbill *T. fasciatus*. Common. Mostly a few birds together, sometimes in groups of up to 35 or even 50 (Nov-Dec). Adults with juveniles in Jan-Feb.

Piping Hornbill *Ceratogymna fistulator*. Not uncommon. In pairs or small, noisy groups.

Brown-cheeked Hornbill *C. cylindricus*. One sighting of 5-7 birds together, 14 Aug 1988.

Black-casqued Hornbill *C. atrata*. Rare. A few records of 2-4 birds together, inside the forest. On two occasions, when the birds were heard only, it was not possible to be certain whether they were this species or Yellow-casqued Hornbill *C. elata*.

Bristle-nosed Barbet *Gymnobucco peli*. Rare. A small nesting colony was discovered in l'Abbé, Feb 1989.

Naked-faced Barbet *G. calvus*. Not uncommon. A few small colonies (numbering a few pairs) in dead emergents or in clearings.

Speckled Tinkerbird *Pogoniulus scolopaceus*. Common in open habitats and in the forest proper, mainly lower and middle strata; singly or in pairs.

Red-rumped Tinkerbird *P. atroflavus*. Common. Forest interior, at all levels.

Yellow-throated Tinkerbird *P. subsulphureus*. Common. Occurs at all levels, though mainly in the canopy. The Upper Guinea race *P. s. chrysopygius* has a whiter throat than the extra-limital nominate race and may thus easily be confused with Yellow-rumped Tinkerbird *P. bilineatus*. However, after having compared series of tape-recorded calls with the recordings of Chappuis (1981), we conclude that *P. bilineatus* does not occur in Yapo.

Yellow-spotted Barbet *Buccanodon duchaillui*. Common. At edges and in the forest proper, mid-level to canopy. Singly or in pairs; occasionally in mixed-species flocks. Although the main call is described as "a purring *brrrr...*" (Fry *et al.* 1988), we have rarely heard this. In Yapo the most frequent call (heard at all hours of the day) consists of a series of hoots, practically indistinguishable from one of the songs of Hairy-breasted Barbet *Tricholaema hirsuta*. Once, five birds perched in the canopy in sight of each other emitted this type of song continuously for more than 30 min. in late afternoon.

Hairy-breasted Barbet *Tricholaema hirsuta*. Common. Mainly in the forest proper, also at edges and in clearings; usually in pairs.

Yellow-billed Barbet *Trachyphonus purpuratus*. Scarce. Forest interior. Encountered singly; occasionally in mixed-species flocks.

Cassin's Honeybird *Prodotiscus insignis*. Scarce. Mainly seen at edges or in clearings, singly or in pairs. Occasionally joins mixed-species flocks in the canopy. Voice (undescribed in the literature): a distinctive buzzy *tsrrr-tsrrr...*, uttered in flight.

Spotted Honeyguide *Indicator maculatus*. One sighting of a bird attracted to melted beeswax bait.

Thick-billed Honeyguide *I. conirostris*. Uncommon. Very seldom seen. In one territory inside the forest singing was heard from exactly the same spot high in the canopy from May to Jan in three consecutive years. Three sightings in the main clearing.

Willcocks's Honeyguide *I. willcocksii*. Rare. Definitely identified once, in the main clearing, 1 Jan 1989.

African Piculet *Sasia africana*. One sighting, the first for Ivory Coast (Demey & Fishpool 1991), of a pair at the forest edge, Plantation de l'Abbé, 6 Nov 1988. Watched from 9.30 to 11.20 h, while the birds flew back and forth between the forest and a recently burned clearing at the other side of the track, to inspect dead trees (8-10 m high). Voice: a rapid, shrill, piercing *see-see-see-see-see*, sunbird-like, but louder, shriller. A soft, rapid tapping was also heard.

Little Green Woodpecker *Campethera maculosa*. Two records of singles at mid-level near a main track

Buff-spotted Woodpecker *C. nivosus*. Uncommon, forest interior at mid-level; often in mixed-species flocks. An adult with a juvenile, Dec.

Brown-eared Woodpecker *C. caroli*. Not uncommon. Forest interior, mainly at mid-level, occasionally within 1 m of the forest floor. Frequently in mixed-species flocks.

Gabon Woodpecker *Dendropicos gabonensis*. Not uncommon, inside the forest and at edges; singly or in pairs. Mainly upper-middle level, occasionally higher; at forest edges also lower, in bushes.

Fire-bellied Woodpecker *D. pyrrhogaster*. Uncommon to scarce. Upper strata of forest interior and edges; in pairs. Once seen in a mixed-species flock.

Rufous-sided Broadbill *Smithornis rufolateralis*. Not uncommon. Mid-level in forest interior. Starts displaying before dawn, when still dark (the first bird sound heard). Only sporadically heard after 9.00 h. Starts again in late afternoon and at dusk. Sometimes the thin, plaintive *theew theew* call is not followed by the display flight. African Broadbill *S. capensis* was not recorded in Yapo, although Thiollay (1985) states that it occurs in the undergrowth of primary and secondary forest.

European Swallow *Hirundo rustica*. Uncommon, Oct-Jan.

Lesser Striped Swallow *H. abyssinica*. Uncommon, in clearings. A pair collecting mud for nest-building in May. A fledgling seen 28 May.

Square-tailed Roughwing *Psalidoprocne nitens*. Common. In small flocks in clearings and along wide tracks. Biggest flocks 20-25 birds.

Fanti Roughwing *P. obscura*. Rare. Single birds in the main clearing in the company of *P. nitens*, Dec-Jan, Mar and May.

Plain-backed Pipit *Anthus leucophrys*. One bird in the main clearing, 20 Nov.

Tree Pipit *A. trivialis*. A single bird in the main clearing, 29 Mar.

Yellow Wagtail *Motacilla flava*. Scarce. Singles in clearings and along tracks (sometimes narrow, shady ones), Oct-Mar.

Yellow-throated Longclaw *Macronyx croceus*. One bird in the main clearing, 7 Feb.

Chestnut-bellied Helmet Shrike *Prionops caniceps*. Common. Middle and upper strata of the forest. In small groups of 4-9 birds, often in mixed-species flocks. Juveniles seen May-Nov.

Sabine's Puffback Shrike *Dryoscopus sabini*. Not uncommon. Singles or pairs in the upper strata. A regular member of mixed-species flocks.

Brown-headed Tchagra *Tchagra australis*. Rare. Shrubbery at the outer edges of the forest.

Black Boubou Shrike *Laniarius leucorhynchus*. Rare. Recorded in the main clearing (once) and along the outer edges of the forest, in tangles, rank vegetation and thicket. Does not enter the forest proper.

Many-coloured Bush Shrike *Malaconotus multicolor*. Scarce. A canopy species which is extremely hard to see, despite its bright colours. A few records of 2-3 birds singing together (mostly May-Jun and Nov).

Lagden's Bush Shrike *M. lagdeni*. Scarce. Singing recorded Oct-Jan and (once) Jul. Pairs seen nest-building 20 Dec 1986 and 22 Nov 1987. On both occasions the nest was hidden in the leafy regrowth on the top of a broken-off tree c. 6 m high. While

approaching with nesting material (long, thin, barely visible fibres), the birds sang in duet. Only one further sighting in the vicinity of the nest of a (silent) bird on 6 Dec 1987. A bird was seen carrying food on 27 Oct 1985. Voice (not described in the literature): most distinctive and typical are a far-carrying, slow *hoot*, *hoot-hoot* followed after a pause by two melodious whistling syllables *hweet-huuuu*. The number of hoots may vary. Also other melodious whistles. The quality of the sound is quite characteristic and not easily forgotten, once heard well.

Black-headed Oriole *Oriolus brachyrhynchus*. Common. Mostly canopy, but occasionally low down (e.g. two birds at 1 m above the forest floor, chasing each other, calling excitedly and spreading downward pressed tail, 20 Jun). Juveniles seen Oct-May. A frequent member of mixed-species flocks. Black-winged Oriole *O. nigripennis* appears to be absent from Yapo.

Glossy-backed Drongo *Dicrurus adsimilis*. Common. Mostly along edges and in (even small) openings in the forest. Always high up, on bare branches below the canopy. An adult with a juvenile seen 29 May.

Shining Drongo *D. atripennis*. Common. Mid-level inside the forest. A frequent, noisy member of mixed-species flocks.

Narrow-tailed Starling *Poeoptera lugubris*. Scarce. In groups of 4-22, in the main clearing, Oct-Nov. A sighting of a single bird, 8 Mar.

Forest Chestnut-winged Starling *Onychognathus fulgidus*. Rare. A few sightings of one or two birds in clearings and along wide tracks, Oct-Jan.

Copper-tailed Glossy Starling *Lamprotornis cupreocauda*. This species, listed as near-threatened by Collar & Stuart (1985), is quite common in Yapo, in pairs or small groups in the canopy. Although essentially frugivorous, it probably also takes insects, as does Purple-headed Glossy Starling *L. purpleiceps* in Gabon (Brosset & Erard 1986), as it is occasionally encountered in mixed-species flocks.

Amethyst Starling *Cinnyricinclus leucogaster*. One sighting of a flock of about ten flying over the canopy, Sep.

Blue Cuckoo-Shrike *Coracina azurea*. Scarce; records scattered throughout the year. A canopy species, occurring singly or in pairs. Despite its bright colouring, quite inconspicuous and easily overlooked if the vocalizations are not known. Readily joins mixed-species flocks.

Common Bulbul *Pycnonotus barbatus*. Common in the main clearing and along roads and edges. Penetrates the forest along the main tracks. Not in the forest proper.

Cameroon Sombre Bulbul *Andropadus curvirostris*. Not uncommon. Lower and middle strata in the forest. A juvenile seen in Apr.

Little Grey Bulbul *A. gracilis*. Common. An edge species, frequenting the upper and middle strata along tracks and clearings. In pairs or small groups. Occurs alongside Ansorge's Bulbul *A. ansorgei*. Adults feeding juveniles seen in Jan.

Ansorge's Bulbul *A. ansorgei*. Common. Very similar in plumage, behaviour and habitat preferences to *A. gracilis* but occasionally also inside the forest, when always in the canopy.

Slender-billed Bulbul *A. gracilirostris*. Common. Canopy of high emergent trees in the forest and at edges; mostly in pairs.

Little Green Bulbul *A. virens*. Common. Mostly in the lower stratum along tracks and edges; does not enter true forest. Sings whole year round.

Yellow-whiskered Bulbul *A. latirostris*. Common. Probably the most numerous bulbul in the forest proper. Sings in all months, with a marked increase Jun-Dec.

Golden Bulbul *Calyptocichla serina*. Not uncommon in canopy. Singly or (mostly) in pairs; sometimes three or four together.

Honeyguide Bulbul *Baeopogon indicator*. Common. Upper levels, singly or in pairs. Heard singing in all months.

Spotted Bulbul *Ixonotus guttatus*. Common. Canopy; rarely lower down (as low as 2-3 m). Always in conspicuous, noisy, monospecific groups, mostly 6-20, once 30. Four birds building a nest together in an isolated tree in the middle of the main clearing, at a height of 8 m, Nov. Adults feeding begging juveniles in Jul, Aug, Oct, Nov.

Simple Leaflove *Chlorocichla simplex*. Rare. Does not enter true forest but occurs on the forest margins in secondary regrowth and abandoned farmlots.

Swamp-palm Bulbul *Thescelocichla leucopleura*. Scarce. Restricted to those few swampy areas of the forest supporting rafia palm. Usually in noisy monospecific groups.

Icterine Bulbul *Phyllastrephus icterinus*. Common. Lower to middle strata, in small groups (3-6) in mixed-species flocks. Begging juveniles seen in May, Jul and Oct.

Bristlebill *Bleda syndactyla*. Not uncommon. Lower level, mostly near the forest floor. Heard singing all year round. A begging juvenile seen in Jan. A frequent member of mixed-species flocks.

Green-tailed Bristlebill *B. eximia*. Rare. Only a few sightings, on or near the forest floor, singly or with mixed-species flocks (once near driver ants and once catching emerging termites).

Grey-headed Bristlebill *B. canicapilla*. Common. The most vocal of the genus. In pairs or small family groups. Heard singing in all months. A forest floor species, frequently joining mixed-species flocks and attracted to ant columns – all three bristle-bills sometimes attend the same column.

Western Bearded Bulbul *Criniger barbatus*. Common. Lower and middle strata. In pairs or small groups. A characteristic member of mixed-species flocks, like the other members of the genus, but also occurring in small, noisy, monospecific groups.

Red-tailed Bulbul *C. calurus*. Common. Middle strata. In small, noisy groups with mixed-species flocks. A begging young seen in May.

Yellow-throated Olive Bulbul *C. olivaceus*. Common. Middle strata. Always seen in mixed-species flocks, in small numbers (1-3). Begging young seen in Nov and Apr. Heard singing in all months. The status of this species, listed as Vulnerable by Collar & Stuart (1985), is worthy of note; it is definitely rare in Tai Forest, its only other known locality in Ivory Coast (Thiollay 1985, Gartshore 1989). The song,

which consists of three short, harsh syllables, uttered in the same, relatively low pitch, sounds identical to the recording of White-bearded Bulbul *C. ndussumensis* by Chappuis (1975).

Western Nicator *Nicator chloris*. Common, mostly in the lower and middle strata (cf. Gabon, where mostly in the canopy: Brosset & Erard 1986). Singing noted in all months.

Forest Scrub-Robin *Cercotrichas leucosticta*. Rare. Recorded on four different dates, in May-Jul 1985 (once two birds) and in Apr 1986. Never seen or heard again thereafter.

Fire-crested Alethe *Alethe diademata*. Not uncommon. Always on or near the forest floor. Heard singing in all months. Young birds with adults seen Oct-Nov. Where driver ants are on the move, this species will be near. Voice: in addition to its usual song (Chappuis 1975) it also has a curious, subdued song including imitations of other species. This mimesis, which does not seem to be documented, was heard to include fragments of *Cuculus clamorus*, *Chrysococcyx cupreus*, *Halcyon badia*, Forest Robin *Stiphornis erythrothorax*, Finsch's Flycatcher-Thrush *Neocossyphus finschi* and *Malimbus* sp.

Brown-chested Alethe *A. poliocephala*. Scarce, but probably more frequent than records suggest (twice mist-netted in places where it had never been observed). An inconspicuous, forest floor species. Seen at ant columns, but much shyer than *A. diademata*.

Forest Robin *Stiphornis erythrothorax*. Common. Encountered singly, on the forest floor or low above it. Song heard in all months. Attends ant columns.

White-tailed Ant Thrush *Neocossyphus poensis*. Common in pairs on the forest floor or just above it. Regularly attends ant columns. This species can be separated from *N. finschi* in the field on behaviour. *N. poensis* wags its tail up and down like a chat; *N. finschi* flicks its white outer tail feathers sideways, scissor fashion. This is very obvious and is diagnostic. The calls are also very different.

Finsch's Flycatcher-Thrush *N. finschi*. Common in pairs in the middle strata. Much more conspicuous than *N. poensis* (see above).

Grey Ground Thrush *Turdus princei*. One sighting of a single bird, on the ground, well inside the forest. Very secretive.

Brown Akalat *Trichastoma fulvescens*. Common in small groups, perching low on vegetation (rarely on the ground), often in mixed-species flocks. Begging juveniles seen in Oct and Dec. Voice: it is perhaps of interest that the so-called "dict-a-fone" song (cf. Chappuis 1975) was never heard, either in Yapo, or elsewhere in Ivory Coast (while in RD's experience in Zaïre this type of song was always part of the vocalizations).

Pale-breasted Akalat *T. rufipennis*. Uncommon. Similar in habits and behaviour to *T. fulvescens*.

Blackcap Akalat *T. cleaveri*. Not uncommon. Usually on the forest floor, often singly. Sings shortly after dawn, rarely thereafter.

Rufous-winged Akalat *T. rufescens*. Uncommon, forest floor. Often in pairs. Song distinctive and far-carrying. Listed as near-threatened by Collar & Stuart (1985).

Wood Warbler *Phylloscopus sibilatrix*. Uncommon. Edges and clearings, mostly canopy, Nov-Apr. Sometimes heard singing; occasionally in mixed flocks of small insectivores.

Whistling Cisticola *Cisticola lateralis*. Scarce. Only around the periphery of Yapo; does not penetrate the forest along tracks.

Tawny-flanked Prinia *Prinia subflava*. Common in regrowth of fairly large clearings.

Black-capped Apalis *Apalis nigriceps*. Common. A canopy species occurring in pairs. Mostly seen in mixed flocks of small insectivores. Rather inconspicuous but easily detected once its vocalizations are known. Duets.

Sharpe's Apalis *A. sharpii*. Common. Canopy; sometimes lower down near edges. Mostly in pairs in mixed flocks of small insectivores. Both this species and *A. nigriceps* call persistently throughout the day and are often the only birds to be heard during the heat of midday. Both species, along with other small insectivores of the canopy, seem to favour leguminous trees with finely divided, bipinnate leaves, e.g. *Piptadeniastrum africanum*. The leaf structure of such trees (large numbers of very small leaflets with midribs providing perches) possibly favour the gleaning activities of these birds.

Yellow-browed Camaroptera *Camaroptera superciliaris*. Common. Shrubbery in clearings and along tracks. Adults with one or two young seen Dec-Mar.

Green-backed Camaroptera *C. chloronota*. Not uncommon, in dense undergrowth along tracks. Usually skulking and infrequently seen, but distinctive, loud and prolonged song attracts attention.

Grey-backed Camaroptera *C. brachyura*. Common. Shrubbery in clearings and along wide tracks. A juvenile seen 15 Nov.

Brown-crowned Eremomela *Eremomela badiceps*. Common in canopy, sometimes descending to mid-level. In pairs or small groups. Juveniles seen in all months from Mar to Nov.

Green Crombec *Sylvietta virens*. Common. Dense shrub in clearings and along tracks. Never in the forest proper.

Lemon-bellied Crombec *S. denti*. Not uncommon. Mostly in the canopy, but nests lower down. Nests (in clearing and along a track) found Jan-Apr. A frequent member of mixed flocks of small insectivores. Inconspicuous, but the song reveals its presence.

Grey Longbill *Macrosphenus concolor*. Common. All levels, but mostly upper and middle strata in the forest proper; also near edges and open areas. A regular member of mixed-species flocks. Is easy to confuse in the field, at least initially, with Scarlet-tufted Sunbird *Anthreptes fraseri*; they are of similar size and colour while the scarlet tufts of the sunbird are, in our experience, never visible. *M. concolor*, however, lacks any distinctive head markings and has pale flesh-coloured legs, while *A. fraseri* has a

conspicuous eye-ring and dark greyish-black or brownish legs. These field marks are often more easily seen than the differences in bill structure and coloration; straight and dark with a pale base in *M. concolor*, slightly curved in *A. fraseri* with upper mandible dark and gradually tapering to a point, lower mandible pale horn and almost straight.

Kemp's Longbill *M. kempii*. Rare. Bushy areas along the forest edge.

Green Hylia *Hylia prasina*. Common. Mostly middle strata of the forest, singly or in pairs. Often in mixed-species flocks. Adults with juveniles seen in May and Aug.

Tit-Hylia *Pholidornis rushiae*. Not uncommon. Mainly in the canopy of lower trees, but also higher up, in monospecific groups of 3-8. Also joins mixed flocks of small insectivores. A pair feeding a young in Mar.

Spotted Flycatcher *Muscicapa striata*. Rare. Main clearing and outer edges, Oct-Nov.

Little Grey Flycatcher *M. epulata*. Scarce. Middle strata of more open parts of the forest (near edges or along shady tracks) with high trees. Very unobtrusive.

Olivaceous Flycatcher *M. olivascens*. Scarce. Middle and lower strata in the forest. A pair with a juvenile in Feb.

Grey-throated Flycatcher *M. griseigularis*. Rare. A few records of singing birds, along the main clearing and at the outer edge of the Plantation de l'Abbé, Sep-Oct 1988.

Dusky Blue Flycatcher *M. comitata*. Uncommon. A pair seen fairly frequently in the main clearing.

Ussher's Flycatcher *M. ussheri*. Not uncommon. Always high on top of emergent dead trees or branches. Adult on nest (18 m high in dead tree at edge of main clearing), Oct. Juveniles seen mostly Jul-Aug, also Apr.

Grey Tit-Flycatcher *Myioparus plumbeus*. Two records of singing birds in or near clearings, Jan and Nov.

Forest Flycatcher *Fraseria ocreata*. Not uncommon. Forest edge as well as interior, mostly at mid-level. Mainly singly or in pairs; sometimes three or four together. Young birds seen in Aug and Dec. Sometimes joins mixed-species flocks.

Violet-backed Hylia *Hylia violacea*. Scarce. Canopy along edges. Singly, in pairs or small groups (mostly consisting of two pairs). Mostly seen in mixed flocks of small insectivores.

Shrike Flycatcher *Megabyas flammulata*. Not uncommon. Canopy, sometimes lower down. Mostly singly or in pairs. Considered an Afrotropical migrant in Gabon (Brosset & Erard 1986), but recorded by us in all months. Young birds seen in Mar and May.

West African Batis *Batis occulta*. Not uncommon. A canopy species, usually seen in mixed flocks of small insectivores, singly or in pairs.

Chestnut Wattle-eye *Platysteira castanea*. Common. Middle strata inside the forest. In pairs or family groups (parents with one young), frequently in mixed-species flocks. Young birds seen Feb-Nov.

Golden-bellied Wattle-eye *P. concreta*. One record: a male in a mixed-species flock, at a height of 2-3 m, Jan.

Chestnut-capped Flycatcher *Erythrocerus mccallii*. Not uncommon. Upper and middle strata. In forest proper or along edges; usually in small groups. Adults with young seen in Feb and May. A regular member of mixed-species flocks.

Blue-headed Crested Flycatcher *Trochocercus nitens*. Uncommon. Favours dense lianas at mid-level. Always recorded in mixed-species flocks.

Dusky Crested Flycatcher *T. nigromitratus*. Not uncommon. Lower strata, from ground to 2 m, rarely to 4 m (so always lower than *T. nitens*). Favours the most humid parts of the forest. In pairs or small family groups; regularly in mixed-species flocks. Seen with nesting material in Jan. Adults with begging young in Mar and Jun.

Red-bellied Paradise Flycatcher *Terpsiphone rufiventer*. Common, noisy and conspicuous. Mostly mid-level. A typical member of mixed-species flocks. Paradise Flycatcher *T. viridis* was never recorded in Yapo.

Forest Penduline Tit *Anthoscopus flavifrons*. Rare, but probably overlooked due to its small size, dull colouring and habit of keeping to the canopy of the highest trees. Under these circumstances it is difficult to identify; it looks rather like a small female sunbird but the short stubby bill is the give-away. On the rare occasions when it descends lower, the yellow on the frons remains almost impossible to see. Occurs in small groups (3-4).

Scarlet-tufted Sunbird *Anthreptes fraseri*. Common; the commonest sunbird after Olive *N. olivacea*. Middle strata in forest proper. A typical member of mixed-species flocks; up to ten birds per flock. (See *Macrosphenus concolor* for field differentiation.)

Yellow-chinned Sunbird *A. rectirostris*. Not uncommon. Mostly canopy along forest tracks and clearings. In pairs or family parties.

Collared Sunbird *A. collaris*. Common. In canopy of tall trees (forest proper), smaller trees and even bushes (edges and clearings). Mostly in pairs or small family groups (parents with one young). Regularly in mixed flocks of small insectivores. Females seen nest-building in Jul and Dec. Begging juveniles in Mar, May-Aug and Dec.

Little Green Sunbird *Nectarinia seimundi*. Uncommon. Mostly canopy, occasionally lower down. Unusual for a sunbird in that it occurs in small monospecific groups of up to eight, which helps identification.

Bates's Sunbird *N. batesi*. Probably rare; difficult to assess, because is very inconspicuous, small canopy bird. Only a few definite sightings of singles. We agree with Brosset & Erard (1986) who likened this species to a miniature *N. olivacea* in its dull colour, upright posture and strongly curved bill. *N. seimundi* on the other hand, is not unlike a small *Anthreptes fraseri*; these two species differ from *N. olivacea* and *N. batesi* in their brighter colouring, more horizontal postures and straighter bills.

Olive Sunbird *N. olivacea*. Common; the commonest sunbird. Lower strata. A regular member of mixed-species flocks. Nest-building seen in Mar.

Olive-backed Sunbird *N. verticalis*. One record: a male high up in a mixed-species flock, Nov.

Blue-throated Brown Sunbird *N. cyanoaema*. Common. Canopy in forest proper or along edges and clearings. In pairs or small groups.

Buff-throated Sunbird *N. adelberti*. Uncommon. Edges and clearings. Juveniles seen Sep-Oct.

Olive-bellied Sunbird *N. chloropygia*. Common in clearings. In pairs.

Tiny Sunbird *N. minulla*. Rare (overlooked?). Not readily distinguishable in the field from *N. chloropygia*. Reference is made in the literature to blue barring in the red breast feathers of male *minulla*, which *chloropygia* lacks. This is, however, virtually impossible to see in the field. A more helpful distinction, which equally applies to females, is bill structure. In *minulla* the bill is appreciably shorter and less curved, such that the lower mandible appears to be almost straight except for the very tip, whereas it is equally curved over most of its length in *chloropygia*. *N. minulla* appears to be dependent on forest, *chloropygia* being much more catholic in its choice, occurring from forest edge and clearings to gardens in city centres. Both species can thus occur at one site; at such sites we have been unable to distinguish any difference between them in habitat preference.

Johanna's Sunbird *N. johannae*. Not uncommon. Upper and middle strata, along tracks and clearings. Mainly in pairs. A female at a nest, May. An immature male, Mar.

Superb Sunbird *N. superba*. Uncommon. Only seen in the main clearing; does not enter forest proper. An immature male, Nov.

Yellow White-eye *Zosterops senegalensis*. Scarce in clearings and along wide, open tracks.

Village Weaver *Ploceus cucullatus*. Rare. A few sightings in the main clearing of 2-20 birds, Apr, Jul, Oct.

Chestnut and Black Weaver *Ploceus nigerrimus*. Two sightings in the main clearing, Feb and May.

Yellow-mantled Weaver *P. tricolor*. A sighting of a single in the main clearing (May) and a pair with a juvenile (Nov) in the Plantation de l'Abbé. The rarity of this species in Yapo seems surprising, considering that it occurs in good numbers in small forest remnants at Adiopodoumé, less than 50 km distant.

Maxwell's Black Weaver *P. albinucha*. Scarce. Singly or in small groups (up to 12). Mainly in the forest, usually high up, but singles occasionally in the main clearing. Juveniles seen Feb and Dec.

Spectacled Weaver *P. nigricollis*. Scarce. Singles occasionally in the main clearing.

Golden-backed Weaver *P. preussi*. One sighting of a juvenile in the canopy of a big tree in the forest, 11 Sep 1988.

Red-vented Malimbe *Malimbus scutatus*. Common. A few always present in the main clearing, where breeding. Also in the forest canopy, although rarely (because of lack of palm trees?). Juveniles seen Oct-Dec. Not in mixed-species flocks.

Blue-billed Malimbe *M. nitens*. Common. Lower strata in the forest and along edges; in pairs or small groups. Nests (always above forest streams) with eggs Jun-Mar and nestlings Jun-Mar. A regular member of mixed-species flocks.

Crested Malimbe *M. malimbicus*. Uncommon. Mainly middle strata in the forest; occasionally in the main clearing. Singly or in pairs; one record of eight together. Nest-building Apr-May and Sep. Juveniles seen Feb, May, Aug and Nov. A regular member of mixed-species flocks.

Red-headed Malimbe *M. rubricollis*. Scarce. Upper strata above shady tracks. Mostly in pairs. Sometimes in mixed-species flocks.

Red-headed Quelea *Quelea erythropis*. Two sightings of small flocks (15 birds) in the main clearing, Mar and Apr.

Grey-headed Sparrow *Passer griseus*. Scarce near human habitations in the main clearing.

Seedcracker *Pyrenestes sanguineus*. An adult in the main clearing (Jul) and a juvenile in the Plantation de l'Abbé (Nov).

Grey-crowned Negrofinch *Nigrita canicapilla*. Common. Mostly canopy. Nest-building observed Oct and Dec. Juveniles seen Aug (once three together), Oct and Nov.

Chestnut-breasted Negrofinch *N. bicolor*. Not uncommon. All levels of the forest. Nest-building observed in May, Jun, Aug and Oct. juveniles seen in May-Jun.

White-breasted Negrofinch *N. fusconota*. Scarce. Canopy along clearings and tracks. Sometimes in mixed flocks of small insectivores.

Red-fronted Antpecker *Parmoptila (woodhousei) jamesoni*. Scarce. Lower strata in the forest (below 5 m), occasionally along edges. Mostly in pairs or family groups. Sometimes in mixed-species flocks. Juveniles seen Dec-Jan and Jun. Voice (previously undescribed): *whseeet*, rather vigorous for such a small bird.

Blue-billed Weaver *Spermophaga haematina*. Scarce, but unobtrusive and probably more common than records suggest. Low down, occasionally mid-level. Sometimes in mixed-species flocks. A juvenile mist-netted in such a flock in Mar.

Orange-cheeked Waxbill *Estrilda melpoda*. Not uncommon in shrubbery and long grass in large clearings.

Maggie Mannikin *Lonchura fringilloides*. One sighting of two birds in the main clearing, 15 Nov.

Blue-billed Mannikin *L. bicolor*. Not uncommon in clearings and along forest edges.

Bronze Mannikin *L. cucullata*. Rare. A small flock in the main clearing, Apr.

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Appendix

Species recorded from Yapo Forest included in the ICBP/IUCN Red Data Book (Collar & Stuart 1985)

Status: Vulnerable

Yellow-throated Olive Bulbul *Criniger olivaceus*

Status: Near-threatened

Rufous-winged Akalat *Trichastoma rufescens*

Copper-tailed Glossy Starling *Lamprotornis cupreicauda*

Candidate species for treatment as threatened:

White-crested Tiger Heron *Tigriornis leucolophus*

Olive Ibis *Bostrychia olivacea*

Congo Serpent Eagle *Dryotriorchis spectabilis*

Long-tailed Hawk *Urotriorchis macrourus*

Ayres's Hawk Eagle *Hieraaetus dubius*

Cassin's Hawk Eagle *Spizaetus africanus*

Ahanta Francolin *Francolinus ahantensis*

Black-collared Lovebird *Agapornis swinderniana*

Sandy Scops Owl *Otus icterorhynchus*

Akun Eagle Owl *Bubo leucostictus*

Red-chested Owlet *Glaucidium tephronotum*

Black Spinetail *Telacanthura melanopygia*

Brown-cheeked Hornbill *Ceratogymna cylindricus*

Little Green Woodpecker *Campethera maculosa*

Lagden's Bush Shrike *Malaconotus lagdeni*

Forest Scrub-Robin *Cercotrichas leucosticta*

Grey Ground Thrush *Turdus princei*

Sharpe's Apalis *Apalis sharpii*

Kemp's Longbill *Macrosphenus kempii*

Olivaceous Flycatcher *Muscicapa olivascens*

Ussher's Flycatcher *Muscicapa ussheri*

Violet-backed Hyliota *Hyliota violacea*

West African Batis *Batis occulta*

Seedcracker *Pyrenestes sanguineus*

MALIMBUS

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